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### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Cunningham on April 16, 2010.

Claim 35 was amended as follows:

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35. (Currently Amended): A method for analyzing at least one reaction medium comprising at least one cell C, comprising:

(i) depositing at least one reaction medium containing the cell C onto a support S comprising a substantially planar surface and contained within a controlled atmosphere chamber, in the form of an aqueous drops comprising the cell C and a solution of culture medium on said surface;

(ii) covering the substantially planar surface of the support S onto which the aqueous drops containing the cell C has have been deposited with a separating film F that allows gases to pass through and prevents evaporation of the aqueous drops deposited onto the support S;

(iii) growing the cell on the planar surface of the support S.

(iv) optionally applying to the aqueous drops containing the cell C one or more treatment steps, wherein the aqueous drops results in a reaction medium;

(iv) (v) preparing and introducing the support S contained within the controlled atmosphere chamber and supporting the reaction medium into a mass spectrometer;

(vi) desorbing and ionizing the reaction medium in the mass spectrometer; and

(vii) recording and analyzing the mass spectrum of the reaction medium.

Claim 44 was amended as follows:

44. (Currently Amended): The method as claimed in claim 35, ~~further comprising at least one treatment step wherein the one or more treatment steps are~~ selected from the group consisting of cell lysis, one or more washes, and the adsorption or the attachment of molecules.

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Claim 45 was amended as follows:

45. (Currently amended): The method as claimed in claim 35, further comprising in step (iv) at least one step consisting of treating the reaction medium or media placed on the support S with a solution of molecules that promote desorption.--

Claim 46 was amended as follows:

46. (Currently Amended): The method as claimed in claim 35, wherein the preparing in step (v) preparation, with a view to introduction into the mass spectrometer, comprises at least one step selected from the group consisting of freezing the reaction medium; drying the reaction medium with or without heat treatment and with or without a vacuum; and fixing the reaction medium by means of a treatment with an agent.

Claim 48 was amended as follows:

48. (Currently Amended): The method as claimed in claim 35, wherein the preparing in step (v) preparation, with a view to introduction into the mass spectrometer, comprises the addition to the reaction medium of one or more acid molecules that are small in size and absorb light, followed by drying.

Claim 49 was amended as follows:

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42. (Currently Amended): The method as claimed in claim 48, further comprising at least the following steps:

introduction of the reaction medium ~~or media~~ placed on the support S into a mass spectrometer tube;

application of a vacuum and of an electric field in the spectrometer tube;

application of a desorption/ionization treatment in a controlled and sequenced manner on the reaction medium ~~sample(s)~~; and

detection of the mass of the ions formed.

Claim 50 was amended as follows:

50. (Currently Amended): The method as claimed in claim 35, further comprising at least one step consisting of comparing the recorded mass ~~spectrometer~~ spectrum with a mass spectrum bank.

Claim 51 was amended as follows:

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51. (Currently Amended): A device for analyzing at least one reaction medium comprising at least one cell C, the device comprising the following:

a reaction medium containing cell C in a solution of culture medium,

a support S comprising a substantially planar surface, wherein the surface of the support S is covered with a separating film F that allows gases to pass through and prevents evaporation of aqueous drops of the reaction medium deposited onto the support S; wherein the support S ~~can be~~ is used as sample support in a mass spectrometer;

a controlled-atmosphere chamber in which the support S is placed so as to allow the survival of the cell C;

means for depositing onto said surface aqueous drops of the reaction medium containing the cell C suspended in ~~[[a]]~~ the culture medium;

means for desorbing and ionizing the reaction medium comprising the cell C while deposited on the surface of support S;

and

a mass spectrometer.

Claim 53 was amended as follows:

53. (Currently Amended): The device as claimed in claim ~~[[52]]~~ 51, wherein the controlled-atmosphere chamber is an incubator at a temperature ranging from 35 to 42°C, the CO<sub>2</sub> level is maintained at between 3 and 5%, and the oxygen O<sub>2</sub> level is that of ambient air.

Claim 60 was amended as follows:

60. (Currently Amended): The device as claimed in claim 51, wherein the support S ~~to the device~~ is mobile.

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Claim 62 was amended as follows:

62. (Currently Amended): The device as claimed in claim 51, wherein the means for depositing aqueous drops and for desorbing and ionizing the reaction medium are connected to a control device that allows ~~[[it]]~~ the means to be automated.

Claim 64 was amended as follows:

64. (Currently Amended): The device as claimed in claim 63, further comprising at least one piece of equipment for measuring the mass of ~~a sample~~ the reaction medium by means of mass spectrometry; the piece of equipment comprising a spectrometer tube, a device for creating a vacuum in the tube; electrical means for applying an electrical acceleration potential in the tube so as to accelerate the molecules of the ~~sample~~ reaction medium to be analyzed; a means for detecting the mass of the ions formed; a means of introducing the support S into the tube; and a means for the desorption and the ionization of the ~~sample~~ reaction medium to be treated.

Claim 66 was amended as follows:

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66. (Currently Amended): The device as claimed in claim 51, wherein the desorption/ionization means is selected from the group consisting of:

MALDI: matrix assisted laser desorption ionization;

SELDI: surface enhanced laser desorption ionization;

SIMS: secondary ion mass spectrometry;

SLAMS: secondary neutral mass spectrometry;

ESI: electrospray ionization; [[o]]

FAB: fast atom bombardment; and

APCI: atmospheric pressure chemical ionization.

Claim 67 was amended as follows:

67. (Currently Amended): The device as claimed in claim 64, wherein the means of measuring/detecting the mass is selected from the group consisting of:

TOF: time of flight;

MS/MS: tandem mass spectrometry or multidimensional mass spectrometry;

Quadrupole (or ion trap); and

FT-MS or FT-ICR: Fourier-Transform mass spectrometry-ion cyclotron resonance.

Claim 70 was amended as follows:

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70. (Currently Amended): A method for analyzing at least one reaction medium comprising at least one cell C comprising:

(i) depositing within a controlled atmosphere chamber an aqueous drops containing live cell C and a culture medium onto a support S having a substantially planar surface,

(ii) covering the substantially planar surface of the support S onto which the aqueous drops containing the cell C has been deposited with a separating film F that allows gases to pass through and prevents evaporation of the aqueous drops deposited onto the support S;

(iii) growing said live cell C on the substantially planar surface of support S,

(iv) optionally stimulating said live cell C,

(v) contacting said cell C on the substantially planar surface with at least one reagent,

(vi) preparing said cell C on the substantially planar surface of support S after contact with said at least one reagent for mass spectrometry,

(vii) introducing said preparation into a mass spectrometer;

(viii) desorbing and ionizing the preparation in the mass spectrometer; and

(ix) recording and analyzing the mass spectrum of the preparation.

2. The following is an examiner's statement of reasons for allowance: Application serial no. 10/563,817 is being allowed in view of the English language translation of the foreign priority document, and since none of the prior art of record teaches or fairly suggests a method and device for analyzing a reaction medium containing at least one cell comprising the steps of



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depositing onto a support contained within a controlled atmosphere chamber a reaction medium containing the cell in a solution of culture medium, covering the support with a separating film that allows gases to pass through and prevents evaporation of the reaction medium, growing the cell on the support, preparing and introducing the reaction medium on the support and contained within the controlled atmosphere chamber into a mass spectrometer, desorbing and ionizing the reaction medium in the mass spectrometer and recording and analyzing the mass spectrum of the reaction medium. In particular, none of the prior art of record teaches or fairly suggests using the same support for both growing a cell in a culture medium and introducing the cell into a mass spectrometer for analysis without having to transfer the cultured cell to a separate support or container for introduction into the mass spectrometer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen M. Wallenhorst whose telephone number is 571-272-1266. The examiner can normally be reached on Monday-Thursday from 6:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim, can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maureen M. Wallenhorst  
Primary Examiner  
Art Unit 1797

mmw

April 16, 2010

/Maureen M. Wallenhorst/

Primary Examiner, Art Unit 1797